

- 14 -

Claims

1. A method for reducing emission and fuel consumption in order to improve combustion in internal combustion engines, whereas, in order to achieve perfect combustion, prior to its entry into the combustion chamber of the internal combustion engine, the mixture of
5 fuel and air is led through a treatment area characterised by specific physical properties, so as to provide, by applying high voltage, the air stream a charge of first polarity and the fuel stream a charge of opposite polarity, *characterized by* vibrating at least one of the air and the fuel stream by a frequency in the ultrasonic range.
2. A method according to claim 1, *characterized in that* at least one of the air and the fuel
10 stream is vibrated by a frequency in the ultrasonic range in the same section where the air stream and the fuel stream are charged with opposite polarities.
3. A method according to claim 1 or 2, *characterized in that* the vibration is generated by an ultrasound generator.
4. A method according to any of claims 1 to 3, *characterized in that* the at least one of the
15 air and the fuel stream is vibrated in several sections.
5. A method according to claim 4, *characterized in that* the at least one of the air and the fuel stream is vibrated in several successive sections.
6. A method according to claim 4, *characterized in that* the at least one of the air and the fuel stream is vibrated in several parallel sections.
- 20 7. A method according to any of claims 1 to 6, *characterized in that* the exclusively either the air stream or the fuel stream is vibrated.
8. A method according to any of claims 1 to 7, *characterized in that* for the purpose of vibration frequencies in the range of 20 to 100 kHz, more preferably in the range of 35 to 45 kHz, will be used.
- 25 9. An equipment reducing emission and fuel consumption in order to enhance combustion in the internal combustion engine, whereas the said equipment contains a first ionising unit providing the air stream with a charge of first polarity and a second ionising unit providing the fuel stream with a charge of opposite polarity, *characterized by* including at least one ionising unit which is equipped with means vibrating at least one of the air stream and the
30 fuel stream by a frequency in the ultrasonic range.

- 15 -

10. An equipment according to claim 9, *characterized in that* it is fitted with means vibrating both the air stream and the fuel stream.
11. An equipment according to claim 9, *characterized in that* the vibrating means is a piezo-electric transducer connected to an ultrasound generator.
- 5 12. An equipment according to any of claims 9 to 11, *characterized in that* it includes several cascaded vibrating means.
13. An equipment according to any of claims 9 to 11, *characterized in that* it includes several vibrating means connected in parallel.
14. An equipment according to claim 9, *characterized in that* the vibrating means is
10 designed as a vibrating means with variable frequency, and/or it is designed as a vibrating means with variable signal amplitude.